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ABSTRACT

This report provided information to the State Board of Regents on the acquisition and use of learning technologies in New York State elementary and secondary schools in 1985-86. The data reported in this study represent two separate collection efforts. First, information on the types and quantities of learning technologies acquired was collected at the school level by the Basic Educational Data System of the State Department of Education's Information Center. Second, a special survey of applied use of learning technologies was conducted in a representative sample of the state's elementary and secondary schools. The findings showed increased computer acquisition and use; increased access to computers and other learning technologies by the "most-in-need" education populations; significant growth in the acquisition and use of visual, media, and communications technologies; and substantial staff development to support technology integration. Of particular interest in the report are analyses of the data on the acquisition and use of learning technologies by the "poverty status of the school." Data analyses are reported in 32 tables. (EW)

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THE ACQUISITION AND USE OF LEARNING TECHNOLOGIES IN NEW YORK STATE SCHOOLS

1985-86

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INTRODUCTION

The educational and cultural institutions in New York State continue to lead the nation in supporting the learning needs of its citizens. The acquisition and use of technology-based learning materials to meet these needs is one measure of the leadership qualities of these institutions. Computers (especially microcomputers), telecommunications and visual technologies are now widely used in the State to support instruction and improve the availability of learning services.

The New York State Board of Regents has requested that the State Education Department make an assessment of the acquisition and use of learning technologies by the State's elementary and secondary schools. Since the benefits of these technologies have a direct impact on the quality of instructional programs, the development of an adequate information base is required to support state level decision-making concerning their acquisitions and use by schools. Two such decisions are (1) the development of funding mechanisms to support the acquisition of appropriate technologies and (2) the assurance of equitable distribution of state-level resources.

During the 1985-86 school year, two major data collection efforts were undertaken by the Department's Information Center on Education to support the development of an information base. First, information on the types and quantities of learning technologies acquired was collected at the school level through the Center's Basic Educational Data System (BEDS). This follows an identical survey done in 1984-85. Second, the Information Center on Education conducted a special survey on the applied use of learning technologies in the State's elementary and secondary schools using a representative sample of schools. The data collected through these survey efforts, the resultant analysis of these data and the specific followup survey initiatives are the focus of the report.

The content of the surveys conducted were reviewed and approved by the New York State Board of Regents, the Regent's Advisory Council on Learning Technologies and the Department's Internal Learning Technologies and Telecommunications Task Force. The opportunity to provide an overview on the acquisition and use of learning technologies is due in large part to the efforts of the Information Center on Education and the above policy making and advisement groups.

SUMMARY HIGHLIGHTS

During the 1985-86 school year, the state's elementary and secondary schools continued to acquire a wide variety of technologies to support instructional programs. There were significant gains in the acquisition and use of computers, videocassette recorders, televisions and video production equipment. Increases in telecommunications and satellite receiver capabilities were also evidenced with the end result that more schools can reach the "outside world" and access a variety of non-traditional learning resources. The survey on the use of technologies shows a wide acceptance of integrating learning technologies into specific curriculum and instructional areas. In addition, there is a significant level of staff development activity related to the training of teaching and administrative staff in the use of learning technologies. Some of the highlights obtained from analysis of the data follow:

- Increased computer acquisition and use
  - The number of computers used for instructional purposes in public and nonpublic elementary and secondary schools increased from 70,000 in 1984-85 to more than 106,000 in 1985-86 (an increase of 58.1% for public schools and 34.4% for nonpublic schools).
  - The number of microcomputers per school increased from an average of 14 in 1984-85 to an average of 23 in 1985-86.
  - The increase in the average of microcomputers per school resulted in a corresponding decrease in the number of students per microcomputer (from 46 in 1984-85 to 29 in 1985-86).
- Increased access to computers and other learning technologies by "most-in-need" educational populations
  - Significant improvement is evident in the acquisition and use of learning technologies by schools with large percentages of students from families supported by public assistance or welfare (schools with high poverty status).
  - There is a fairly uniform pattern of technology integration (for all types of learning technologies) for schools at all socio-economic levels.
- Significant growth in acquisition and use of visual, media and telecommunications technologies
  - The number of videocassette recorders (VCR's) increased over 40% in the past year; nearly 16,000 are now in use.
  - Over one third of the State's public and nonpublic school teachers are using video or television as instructional tools.
  - Telecommunications technologies have expanded, providing schools with the capacity to receive video programming through local area networks, satellite broadcast and cable networks.
  - More than 4,000 schools receive public television (PTV/ITV) broadcasts and 2,500 schools receive cable television broadcasts.

- In 1985-86, more than 26 "distance learning" pilot projects were initiated. In 1986-87, to date, nearly 80 projects are in implementation or pilot stages in public school districts in the State.

- Staff development to support technology integration

  - More than 77% of the State's public schools and 58% of the nonpublic schools provided opportunities for training in the use of learning technlogies.

  - Over 80% of the schools offering training provided these services in the area of curriculum development or curriculum integration.

  - The home school or district was the primary source for staff development and training.

ACQUISITION OF LEARNING TECHNOLOGIES

Over the past few years New York State schools have become increasingly more proficient in using learning technologies to meet the demands of their constituencies for improved and expanded educational and cultural services. The number and types of learning technologies acquired for use in supporting instruction are important measures of schools' capacities to meet the need. These measures of capacities are also important in determining whether or not school populations of varying economic means have had equal opportunities for acquiring and using appropriate technologies.

This section of the report provides baseline information on the acquisition of learning technologies. It also provides a context for describing the use of learning technologies in a subsequent section. Where appropriate, comparison with data from nationwide surveys is presented.

Microcomputers

In 1984 and 1985, the State Education Department's Information Center on Education, through its Basic Educational Data System (BEDS), has collected information on microcomputer acquisition from all public and nonpublic schools. The Information Center also conducted a special survey on computer use in schools in the Spring of 1983. Over the past three years the data obtained from BEDS and from the Special Survey show a clear steady growth in the number of microcomputers acquired by both public and nonpublic schools in all regions of the state.

By 1985, schools had acquired over 106,000 microcomputers compared to 24,500 in the spring of 1983, an increase of over 430%. From the Fall of 1984 to the Fall of 1985 the number of microcomputers in schools rose over 50%. While the greatest rate of growth was in the New York City region of the State (over 118% for public schools and over 89% for nonpublic schools), significant increases were reported by schools in all regions of the state.

This significant growth resulted in greater availability of and access to microcomputers by students and staff. For public schools the number of microcomputers per school increased from 14 to 23 between the 1984-85 and 1985-86 school years, and the ratio of students per microcomputer decreased from 46 to 29 during the same time period. The percent of students regularly using microcomputers also improved from 41.3% to 52.5% in public schools.

Tables 1-3 provide an overview of the growth in microcomputer acquisition and availability from the 1984-85 school year to the 1985-86 school year for all regions of the State for public and nonpublic school sectors and all schools combined.

Recent nationwide surveys on the acquisition and use of learning technologies by schools show New York State schools to be well above the average in terms of the number of computers per school and in the number of students per computer. A study conducted by Johns Hopkins University* on behalf of the National Center for Education Statistics (NECS) showed that the number of computers in schools averaged about 8 per school, for schools reporting computer use in 1985. In New York State the average number of computers per school is approximately 23.2. Correspondingly, the national ratio of students per computer was approximately 42 to 1 while the New York State State

* Instructional Uses of Schools Computers, The Johns Hopkins University Center for Social Organization of Schools, Issue #1 - June, 1986.

average was 29 to 1. A recent article in *Electronic Learning* (Oct. 86) contains comparable information on students-to-computer ratios which shows New York State to be among the states with the lowest ratio of students per computer (Alaska, Conneticut and Wyoming are lowest) at 29 to 1, which is well below the national average.

The data provided in tables 1-3 can also be used to make comparisons with national averages for specific regions of the state. In some regions there is significant variability with statewide averages, and regional averages are either more or less favorable with national averages.

With respect to the brands of microcomputers currently in, use approximately 46% of the hardware was acquired from the Apple Corporation. Nearly 21% of the microcomputers are from Commodore, slightly over 15% are from Radio Shack (Tandy) and approximately 8% have been acquired from IBM. All other brands currently in use have been acquired in proportions less than 4% of the total. While not shown in the table, these proportions are fairly comparable for both public and nonpublic schools. For purposes of understanding the trends in acquiring various brands of computers Table 4 provides information on the number and percents of acquisitions by source of manufacture.

Equitable access to learning technologies is a state-level and a statewide objective that has been given priority consideration by the New York State Board of Regents. Data provided to the Regents in the Spring of 1985 showed that public schools with high percentages of "most-in-need" populations (as measured by the percent of students on welfare) had significantly fewer microcomputers per school and higher student/computer ratios. An analysis of comparable data collected from schools during the fall of 1985 shows that significant progress had been made in these schools. In large part, the improvements in equitable acquisition across schools are related to State policy which directs greater amounts of state aid for hardware acquisitions to schools and districts with lesser ability to support such acquisitions with local funds. In the case of New York City, the state initiative in this regard was matched with one-time increased contributions of local tax levy monies to provide the needed supplemental support.

Tables 5, 6 and 7 provide a profile of computer acquisition and use by public schools according to the percentage of students on welfare (poverty status) for the 1984 and 1985 school years. Table 5 presents statewide results, Table 6 presents information for New York City public schools, and Table 7 provides information on public schools for the rest of the State. These tables have been generated for public schools only.

While some variation exists among schools in different poverty status categories, the variations have decreased in magnitude. Additionally, schools in nearly all poverty status categories compare favorably with national averages for all schools. More detail on the use of learning technologies and the poverty status of schools will be provided in the next section of the report.

Visual Technologies

Schools are also acquiring large numbers of visual technologies to support the learning process. Videocassette player/recorders and television sets, in combination, can be used to bring high quality programming into the classroom with more flexibility and ease of use than ever before. The power of visual imagery and a convenient delivery mode are now combined, and teachers are able to add exciting new components to the instructional process. The growth of visual technologies is not unrelated to the growth of computerbased technologies since good quality computer software is generally considered to have

attribute of good visual imagery, motion and sound. Increased accessibility to public television, especially instructional television programming, cable television and, satellite receiver capacities as well as an enhanced array of privately and publicly supported instructional video programming have expanded the alternatives that teachers have available to support and enhance classroom instruction.

During the 1985-86 school year nearly 16,000 videocassette player/recorders and over 42,000 television sets were available for use in New York State's public and nonpublic schools. More than 4,300 schools have capability to receive public television and instructional television programs while some 2500 schools have access to cable television channels. Nearly 90 satellite dishes are available to receive satellite-based instructional programming and over 1,000 schools use television production technology as a methodology for supporting instruction.

More than half of the VCRs currently in use are the 1/2" VHS type; slightly less than half of the television sets in use are color. There are approximately 2.6 television sets available for each VCR in use. The significant number of television receivers available and the low ratio of VCRs to televisions allows teachers to access a variety of video-based instructional materials to support their activities.

In comparison with the 1984-85 school year there was a 48% increase in the number of VCRs in use and a 6% increase in the number of television sets in use.

Tables 8-10 provide a comprehensive overview of visual technologies acquisition for the total State, public schools and nonpublic schools respectively. All data are arrayed for each of the thirteen regions in the State.

USE OF LEARNING TECHNOLOGIES

To fully understand the impact of learning technology acquisition on the curriculum, some analysis of the use of these technologies is required. As mentioned earlier a special survey on the applied use of learning technologies was conducted in the Spring of 1986. The resultant data analyses were structured to allow comparisons of technology use among schools of varying poverty status (as measured by the percentage of students from families supported by public welfare programs). The survey was conducted using a sample of schools representative of the public and nonpublic schools in the State. A copy of the survey is provided in Appendix A.

The data analyses of learning technology use in public schools are organized across two dimensions. First, the use of learning technologies in specific curriculum areas is summarized using the number of schools reporting the use of technology in that curriculum area as the base (Tables 12-19). Second, the use of specific learning technologies across all curriculum areas is summarized using the number of schools reporting the use of a specific technology as the base (Tables 20-30). Both dimensions contain analyses of use for schools of varying poverty status. Table 11 provides a summary matrix showing the relative use of learning technologies (public schools) within specified curriculum areas.

This special survey effort is unique since data were gathered on the use of a variety of learning technologies including computer-based technologies, visual technologies, interactive video and distance learning systems. The analysis of the use of this broad variety of learning technologies provides a comprehensive picture of the full extent of technology acquisition and use by schools.

Because many inferences and conclusions can be drawn from the data tables presented in this section, the full array of tables is presented for the reader's review and analysis. Only a broad overview of some of the results of the data analyses will be presented here.

Most Commonly Used Techologies

The use of specific kinds of learning technologies vary widely from one curriculum area to another (See table 11). However, there are five types of learning technologies that are used by significant percentages of public schools in most curriculum areas. The computer-based technologies classified as computer-assisted instruction packages (drill and practice, simulation/gaming, tutorial), word-processing software and the visual technology of videotape (and film) were used by large percentages of schools. In the area of science, English, social studies, language arts and occupational education the use of videotape technology was comparable to, or greater than, the use of computer-based technologies. In science and social studies the use of videotape was reported by more than 70% of the schools. The use of off-air or cable-based television programming was also used by large percentages of schools in all curriculum areas. Increased acquisition of videocassette recorders and the availability of good quality, low-cost film and video materials contribute significantly to the use of these technologies. While no data are available for preceding years, the substantial increase in acquisitions of visual technologies is expected to fuel continued increases in the percentage of schools using these technologies.

Data obtained from the regular Basic Educational Data System (BEDS) survey in the fall of 1985 showed that more than 58,000 public school teachers and nearly 13,000 nonpublic school teachers use television (either regularly or occasionally) to support instruction. These data are not arrayed in tabular form in the publication.

While the percentages of public schools using interactive video are not large, they are consistent across all curriculum areas. In all likelihood the low percentages are attributable to the relatively small number of interactive videodiscs available at the present time and to the nature of their use. Most interactive video programs are targeted to very specific curriculum objectives at a specific grade level. The percentages of schools using interactive video are expected to increase as more programming and training in its use become available.

Distance learning systems are currently used by low percentages of public schools in all curriculum areas. Generally, most distance learning systems are in the development and implementation stage and use should increase substantially in future years. At the present time there are over 75 distance learning projects under development involving hundreds of schools. The promise of these systems lies in their ability to support the needs of generally unserved or underserved populations in a cost effective manner.

A publication on the use of visual technologies to support instruction has been developed by the Center for Learning Technologies. The publication, entitled VIDEO VISION, provides a comprehensive overview of the use of these technologies including the use of video production as an instructional methodology.

COMPARISON BETWEEN PUBLIC AND NONPUBLIC SCHOOLS

Table 31 provides a comparison of the relative use of learning technologies between public and nonpublic schools. For each type of technology, the percentage of public schools using the techology is greater than the percentage for nonpublic schools. At the same time, the frequency of use for the respective technologies is consistent between public and nonpublic schools. For example, CAI drill and practice software is the most frequently used by both educational sectors and videotape is the most frequently used visual technology used by both sectors.

STAFF DEVELOPMENT AND TRAINING

Table 32 provides summary information on the nature and source of staff development and training services that have been provided to assist schools in using learning technologies. Staff have received some development or training services in over 77% of the public schools to assist them in technology use, and over 58% of the staff in nonpublic schools has received similar services. The predominant types of training received are in the areas of curriculum integration and curriculum development. Some 83% of the public schools and 73% of the nonpublic schools reported these types of staff development services in their schools. More than 56% of the public schools and over 52% of the nonpublic schools reported staff development or training activity in the area of administrative applications (primarily computer related).

The home school and district were the primary sources of staff development and training activities; nearly 84% of the public schools and 52% of the nonpublic schools reported that source of training. For public schools, the next most frequently identified source of training was BOCES while for nonpublic schools the next most frequetly identified source was organizations other than the five categories listed on the survey form. In comparison with public schools, a higher percentage of nonpublic schools used commercial firms, postsecondary institutions and the State Education Department as sources of staff development or training services.

TABLE 1

MICROCOMPUTER USE IN NEW YORK STATE PUBLIC AND NONPUBLIC SCHOOLS BY GEOGRAPHIC REGION FALL 1984 AND FALL 1985

Region	Number of Microcomputers		Number of Micro-computers Per School		Number of Students per Microcomputer		Percent of Students Using Microcomputers Regularly*	
	1984	1985	1984	1985	1984.	1985	1984	1985
New York City	16,903	32,020	9	17	72	38	28.3%	40.2%
Nassau-Suffolk	13,306	18,462	15	21	37	26	48.9	59.9
Mid-Hudson	10,833	14,944	13	18	33	23	51.6	59.4
Upper Hudson	5,446	7,488	13	18	32	23	47.8	58.3
Lake Champlain-Lake George	1,547	2,087	12	16	29	21	41.6	50.0
Black River-St. Lawrence	1,753	2,347	11	15	31	23	49.6	57.9
Upper Mohawk Valley	1,684	2,419	11	16	35	24	50.9	60.3
Central	3,028	4,790	9	15	48	30	47.0	56.8
Southern Tier-East	2,378	3,421	11	15	38	26	46.4	54.5
Southern Tier-Central	1,315	1,896	14	20	31	21	44.8	55.9
Southern Tier-West	1,848	2,771	11	16	30	20	39.0	55.4
Genesee-Finger Lakes	5,128	7,189	12	16	39	28	55.4	60.9
Western	4,315	65,390	9	13	51	34	43.0	53.8
Total State	69,484	106,224	11	17	45	29	40.7	51.1

* Regular use is defined as the direct interaction with a computer or computer terminal as a part of a planned sequence of instructional activities, either as an instructional tool or as an object of instruction.

TABLE 2
MICROCOMPUTER USE IN NEW YORK STATE PUBLIC SCHOOLS
BY GEOGRAPHIC REGION
FALL 1984 AND FALL 1985

Region	Number of Microcomputers		Number of Micro-computers Per School		Number of Students per Microcomputer		Percent of Students Using Microcomputers Regularly*	
	1984	1985	1984	1985	1984	1985	1984	1985
New York City	10,919	23,890	11	24	85	39	28.1%	41.9%
Nassau-Suffolk	11,351	16,167	17	25	38	26	49.3	60.8
Mid-Hudson	8,935	12,727	17	24	33	23	52.2	60.7
Upper Hudson	4,751	6,593	16	23	32	22	48.0	58.9
Lake Champlain-Lake George	1,425	1,937	15	20	29	21	41.9	50.6
Black River-St. Lawrence	1,629	2,209	14	19	31	23	49.5	57.4
Upper Mohawk Valley	1,559	2,230	14	21	34	24	51.8	61.5
Central	2,812	4,455	12	20	47	29	46.1	55.7
Southern Tier-East	2,218	3,208	13	19	38	26	45.7	54.2
Southern Tier-Central	1,253	1,817	178	25	29	20	44.4	55.9
Southern Tier-West	1,778	2,659	15	23	29	19	40.2	56.8
Genesee-Finger Lakes	4,369	6,191	15	21	40	28	54.7	60.3
Western	3,385	5,053	11	17	53	35	42.5	53.1
Total State	56,384	89,136	14	23	46	29	41.3	52.5

* Regular use is defined as the direct interaction with a computer or computer terminal as a part of a planned sequence of instructional activities, etiher as an instructional tool or as an object of instruction.

TABLE 3

MICROCOMPUTER USE IN NEW YORK STATE NONPUBLIC SCHOOLS BY GEOGRAPHIC REGION FALL 1984 AND FALL 1985

Region	Number of Microcomputers		Number of Micro-computers Per School		Number of Students per Microcomputer		Percent of Students Using Microcomputers Regularly*	
	1984	1985	1984	1985	1984	1985	1984	1985
New York City	5,984	8,130	6	9	50	36	28.7%	34.5%
Nassau-Suffolk	1,955	2,295	8	9	32	26	46.0	53.9
Mid-Hudson	1,898	2,217	6	7	31	26	48.3	53.0
Upper Hudson	695	895	5	7	33	24	46.1	53.6
Lake Champlain-Lake George	122	150	4	5	32	25	38.5	43.0
Black River-St. Lawrence	124	138	3	3	35	30	51.0	63.3
Upper Mohawk Valley	125	189	3	5	50	28	42.9	48.7
Central	216	335	2	4	59	37	55.9	69.1
Southern Tier-East	160	213	3	4	35	26	56.6	58.3
Southern Tier-Central	62	79	3	4	59	41	49.7	56.0
Southern Tier-West	70	112	1	2	59	35	24.3	36.2
Genesee-Finger Lakes	759	998	5	7	35	26	60.1	64.9
Western	930	1,337	5	7	42	28	45.1	57.3
Total State	13,100	17,088	6	7	42	31	37.7	44.3

* Regular use is defined as the direct interaction with a computer or computer terminal as a part of a planned sequence of instructional activities, etiher as an instructional tool or as an object of instruction.

TABLE 4

NUMBER AND PERCENT OF MICROCOMPUTERS BY SOURCE OF MANUFACTURE

TOTAL PUBLIC AND NONPUBLIC SCHOOLS
NEW YORK STATE
FALL 1983, FALL 1984, FALL 1985

Source of Manufacture	1983-84		1984-85		1985-86	
	Number	Percent	Number	Percent	Number	Percent
Apple	6,292	25.6	24,880	35.8	48,486	45.7
Atari	369	1.5	1,505	2.2	1,711	1.6
Commodore	9,340	38.0	19,170	27.6	22,204	20.9
Franklin Ace	270	1.1	1,969	2.8	2,198	2.1
IBM	197	0.8	2,937	4.2	8,587	8.1
Radio Shack (TRS)	6,563	26.7	13,630	19.6	16,273	15.3
Texas Instruments	712	2.9	2,551	3.7	2,565	2.4
Other	837	3.4	2,842	4.1	4,200	4.0

TABLE 5

MICROCOMPUTER USE IN NEW YORK STATE PUBLIC SCHOOLS BY POVERTY STATUS OF SCHOOL*

TOTAL STATE

FALL 1984 AND FALL 1985

Poverty Status of School*	Number of Microcomputers per School		Number of Students per Microcomputer		Percent of Students Using Microcomputers Regularly*	
	1984	1985	1984	1985	1984	1985
0	16	20	28	21	62.3%	70.1%
1 - 10%	16	24	38	25	49.7	58.9
11 - 20%	17	25	40	24	44.5	57.7
21 - 30%	15	23	44	28	40.8	53.1
31 - 40%	12	22	53	31	37.2	52.2
41 - 50%	11	21	61	40	30.8	43.4
51 - 60%	10	23	81	38	29.0	39.6
61 - 70%	8	13	85	56	27.0	38.3
71 - 80%	10	14	86	56	27.8	36.1
81 - 90%	8	18	98	36	23.5	40.5
91 - 100%	7	22	98	33	24.5	41.3
TOTAL	14	23	46	29	41.3%	52.5%

*Regular use is defined as the direct interaction with a computer or computer terminal, as a part of a planned sequence of instructional activities, either as an instructional tool or as an object of instruction.

Poverty Status = Percent of students from families whose primary means of support is a public welfare program.

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TABLE 6

MICROCOMPUTER USE IN NEW YORK STATE PUBLIC SCHOOLS BY POVERTY STATUS OF SCHOOL*

NEW YORK CITY

FALL 1984 AND FALL 1985

Poverty Status of School	Number of Microcomputers per School		Number of Students per Microcomputer		Percent of Students Using Microcomputers Regularly*	
	1984	1985	1984	1985	1984	1985
0	10	10	117	14	71.1%	41.0%
1 - 10%	14	28	63	36	40.0	43.5
11 - 20%	18	38	68	23	31.9	52.2
21 - 30%	14	28	73	36	30.3	48.7
31 - 40%	11	28	93	38	29.8	48.1
41 - 50%	12	26	82	42	24.5	42.0
51 - 60%	11	26	102	39	25.3	37.4
61 - 70%	8	14	104	58	25.1	37.0
71 - 80%	11	16	87	55	26.5	34.0
81 - 90%	8	22	100	37	23.3	36.9
91 - 100%	6	24	111	35	24.0	40.3
TOTAL	11	24	85	39	28.1%	41.9%

*Regular use is defined as the direct interaction with a computer or computer terminal, as a part of a planned sequence of instructional activities, either as an instructional tool or as an object of instruction.

Poverty Status = Percent of students from families whose primary means of support is a public welfare program.

TABLE 7

MICROCOMPUTER USE IN NEW YORK STATE PUBLIC SCHOOLS BY POVERTY STATUS OF SCHOOL*

TOTAL STATE (EXCLUDING NEW YORK CITY)

FALL 1984 AND FALL 1985

Poverty Status of School*	Number of Microcomputers per School		Number of Students per Microcomputer		Percent of Students Using Microcomputers Regularly*	
	1984	1985	1984	1985	1984	1985
0	16	20	28	21	62.0%	70.4%
1 - 10%	17	24	37	25	50.6	59.6
11 - 20%	16	24	35	24	48.8	58.9
21 - 30%	15	22	36	24	46.5	56.0
31 - 40%	13	20	42	26	42.1	56.2
41 - 50%	11	14	44	35	40.4	48.0
51 - 60%	9	14	51	34	40.1	53.9
61 - 70%	9	9	44	48	36.9	46.1
71 - 80%	8	9	73	58	38.5	47.2
81 - 90%	5	9	75	32	26.0	69.5
91 - 100%	9	15	20	22	40.7	49.4
TOTAL	15	22	37	25	48.6%	58.4%

*Regular use is defined as the direct interaction with a computer or computer terminal, as a part of a planned sequence of instructional activities, either as an instructional tool or as an object of instruction.

Poverty Status = Percent of students from families whose primary means of support is a public welfare program.

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TABLE 8
VISUAL TECHNOLOGY ACQUISITION IN PUBLIC AND NONPUBLIC SCOOLS
NEW YORK STATE
FALL 1985

Region	Number of VCR's					Number of Televisions			Number of Schools With			
	3/4"	1/2" Beta	1/2" VHS	Other	Total	B/W	Color	Total	Public TV Receive Capability	Cable TV Access	TVRO Satellite Dish	TV Production for Instruction
New York City	1,078	287	1,787	500	3,652	5,073	3,103	8,176	1,042	155	26	186
Nassau/Suffolk	607	151	1,894	150	2,802	3,543	2,993	6,536	644	507	18	193
Mid-Hudson	371	216	1,525	175	2,287	3,022	2,597	5,619	574	443	18	196
Upper Hudson	235	52	649	87	1,023	2,125	1,603	3,728	325	212	7	79
Lake George-Champlain	123	21	183	12	339	466	491	957	97	79	2	20
Black River/St. Lawrence	146	21	172	56	395	826	819	1,645	124	84	0	33
Upper Mohawk Valley	177	14	131	43	365	330	380	710	113	99	4	20
Centra	289	66	339	62	756	1,947	970	2,917	260	162	1	59
Southern Tier-East	379	49	370	23	821	794	1,568	2,362	188	157	1	43
Southern Tier-Central	108	18	237	25	388	123	1,261	1,384	80	73	1	17
Southern Tier-West	290	23	198	35	546	254	1,404	1,658	115	86	3	22
Genesee-Finger Lakes	409	159	402	133	1,103	1,823	1,339	3,162	361	226	3	80
Western	438	83	626	105	1,252	1,850	1,518	3,368	400	239	3	82
Total State	4,650	1,160	8,513	1,406	15,729	22,176	20,046	42,222	4,323	2,522	87	1,030

TABLE 9
VISUAL TECHNOLOGY ACQUISITION IN PUBLIC SCHOOLS
NEW YORK STATE
FALL 1985

Region	Number of VCR's					Number of Televisions			Number of Schools With			
	3/4"	1/2" Beta	1/2" VHS	Other	Total	B/W	Color	Total	Public TV Receive Capability	Cable TV Access	TVRO Satellite Dish	TV Production for Instruction
New York City	646	102	1,140	249	2,137	2,298	1,742	4,040	584	86	1	115
Nassau/Suffolk	476	98	1,620	124	2,318	2,762	2,482	5,244	495	439	4	168
Mid-Hudson	257	174	1,253	136	1,820	2,310	2,071	4,381	423	376	2	156
Upper Hudson	198	31	562	63	854	1,875	1,404	3,279	250	186	5	73
Lake George-Champlain	109	15	168	12	304	429	448	877	79	66	2	18
Black River/St. Lawrence	121	18	163	39	341	713	771	1,484	107	68	0	32
Upper Mohawk Valley	169	10	104	31	314	247	323	570	88	78	4	18
Centra	287	60	305	53	705	1,745	904	2,649	212	139	0	56
Southern Tier-East	363	34	344	22	763	712	1,510	2,222	156	137	1	40
Southern Tier-Central	105	17	223	25	370	109	1,240	1,349	68	60	1	16
Southern Tier-West	279	21	184	28	512	213	1,374	1,587	97	77	3	21
Genesee-Finger Lakes	377	112	322	86	897	1,586	1,109	2,695	256	176	2	69
Western	362	61	464	46	933	1,380	1,229	2,609	260	166	1	60
Total State	3,749	753	6,852	914	12,268	16,379	16,607	32,986	3,075	2,054	26	842

TABLE 10
VISUAL TECHNOLOGY ACQUISITION IN NONPUBLIC SCHOOLS
NEW YORK STATE
FALL 1985

Region	Number of VCR's					Number of Televisions			Number of Schools With			
	3/4"	1/2" Beta	1/2" VHS	Other	Total	B/W	Color	Total	Public TV Receive Capability	Cable TV Access	TVRO Satellite Dish	TV Production for Instruction
New York City	432	185	647	251	1,515	2,775	1,361	4,136	458	69	25	71
Nassau/Suffolk	131	53	274	26	484	781	511	1,292	149	68	14	25
Mid-Hudson	114	42	272	39	467	712	526	1,238	151	67	16	40
Upper Hudson	37	21	87	24	169	250	199	449	75	26	2	6
Lake George-Champlain	14	6	15	0	35	37	43	80	18	13	0	2
Black River/St. Lawrence	25	3	9	17	54	113	48	161	17	16	0	1
Upper Mohawk Valley	8	4	27	12	51	83	57	140	25	21	0	2
Centra	2	6	34	9	51	202	66	268	48	23	1	3
Southern Tier-East	16	15	26	1	58	82	58	140	32	20	0	3
Southern Tier-Central	3	1	14	0	18	14	21	35	12	13	0	1
Southern Tier-West	11	2	14	7	34	41	30	71	18	9	0	1
Genesee-Finger Lakes	32	47	80	47	206	237	230	467	105	50	1	11
Western	76	22	162	59	319	470	289	759	140	73	2	22
Total State	901	407	1,661	492	3,461	5,797	3,439	9,236	1,248	468	61	188

TABLE 11

PERCENT OF PUBLIC SCHOOLS USING LEARNING TECHNOLOGIES BY TYPE OF TECHNOLOGY AND CURRICULUM AREA

NEW YORK STATE
SPRING 1986

Learning Technology	Curriculum Area							
	Mathematics	Science	English	Social Studies	Language Arts	Occupational Education	Special Education	Other
Computer Assisted Instruction								
Drill and Practice	92.8%	37.8%	56.1%	32.3%	69.8%	37.4%	76.0%	31.7%
Simulation/Gaming	62.8	48.3	30.2	46.1	42.8	29.0	50.1	30.0
Tutorial	67.8	31.7	38.9	21.5	44.3	28.4	51.1	25.4
Word Processing	9.2	12.2	53.0	18.5	50.0	48.4	35.2	35.3
Database/Spreadsheet	10.0	9.7	5.6	10.1	4.0	27.7	4.9	29.2
Television/Video								
Television (off air)	10.1	37.2	26.4	39.1	27.6	17.1	20.1	16.9
Cable Television	9.6	26.8	19.7	27.9	19.8	14.5	15.1	16.6
Videotape	27.3	72.1	58.5	75.1	60.3	64.5	48.3	50.8
Television Production	2.5	6.5	11.9	10.1	13.6	8.4	3.9	18.9
Interactive Video	2.8	2.5	3.5	2.1	3.7	3.9	2.5	3.6
Distance Learning	0.8	0.7	1.3	0.5	1.2	1.6	1.0	1.3

NOTE: Percents based on the number of schools indicating use of a learning technology.

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TABLE 12

PERCENT OF PUBLIC SCHOOLS USING LEARNING TECHNOLOGIES IN MATHEMATICS BY TYPE OF TECHNOLOGY AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Learning Technology	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Computer Assisted Instruction						
Drill and Practice	92.7%	92.1%	93.8%	94.5%	90.7%	92.8%
Simulation/Gaming	62.0	67.0	58.6	63.0	61.3	62.8
Tutorial	71.6	67.4	64.2	65.4	65.3	67.8
Word Processing	8.9	10.8	6.2	11.0	9.3	9.2
Database/Spreadsheet	10.9	9.3	8.0	9.4	13.3	10.0
Television/Video						
Television (off air)	11.9	9.3	9.9	9.4	6.7	10.1
Cable Television	9.6	13.7	8.6	7.9	2.7	9.6
Videotape	34.3	30.4	22.8	18.1	14.7	27.3
Television Production	2.6	2.2	2.5	2.1	2.7	2.5
Interactive Video	1.7	3.1	5.0	3.1	1.3	2.8
Distance Learning	1.0	1.3	--	0.8	--	0.8

NOTE: Percents are based on the number of schools using any Learning Technology in mathematics.

*Poverty Status:

1: 0 - 20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 13

PERCENT OF PUBLIC SCHOOLS USING LEARNING TECHNOLOGIES IN SCIENCE BY TYPE OF TECHNOLOGY AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Learning Technology	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Computer Assisted Instruction						
Drill and Practice	35.5%	40.1%	37.3%	39.8%	38.8%	37.8%
Simulation/Gaming	48.4	55.3	42.4	42.2	44.9	48.3
Tutorial	31.5	33.0	33.1	26.5	32.7	31.7
Word Processing	12.5	13.7	8.5	13.3	12.2	12.2
Database/Spreadsheet	11.4	9.1	3.4	14.5	10.2	9.7
Television/Video						
Television (off air)	39.6	33.5	38.1	41.0	30.6	37.2
Cable Television	31.9	31.5	22.9	15.7	8.2	26.8
Videotape	83.9	69.5	61.9	59.0	63.3	72.1
Television Production	7.3	5.6	4.2	10.8	4.1	6.5
Interactive Video	1.8	2.5	3.4	4.8	--	2.5
Distance Learning	0.4	1.5	--	1.2	--	0.7

NOTE: Percents are based on the number of schools using any Learning Technology in science.

*Poverty Status:

1: 0 - 20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

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TABLE 14

PERCENT OF PUBLIC SCHOOLS USING LEARNING TECHNOLOGIES IN ENGLISH BY TYPE OF TECHNOLOGY AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Learning Technology	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Computer Assisted Instruction						
Drill and Practice	54.2%	52.8%	57.1%	61.3%	66.1%	56.1%
Simulation/Gaming	28.5	29.0	31.7	33.3	33.9	30.2
Tutorial	39.7	36.3	44.4	33.3	41.1	38.9
Word Processing	58.1	50.3	50.8	47.3	51.8	53.0
Database/Spreadsheet	6.1	5.7	4.0	5.4	7.1	5.6
Television/Video						
Television (off air)	32.5	23.3	22.2	23.7	21.4	26.4
Cable Television	24.9	22.8	13.5	14.0	7.1	19.7
Videotape	71.1	56.5	53.2	44.1	39.3	58.5
Television Production	15.5	10.9	9.5	10.8	5.4	11.9
Interactive Video	2.5	4.1	5.6	2.2	3.6	3.5
Distance Learning	1.8	1.0	1.6	1.1	--	1.3

NOTE: Percents are based on the number of schools using any Learning Technology in English.

*Poverty Status:

1: 0 - 20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 15

PERCENT OF PUBLIC SCHOOLS USING LEARNING TECHNOLOGIES IN SOCIAL STUDIES BY TYPE OF TECHNOLOGY AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Learning Technology	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Computer Assisted Instruction						
Drill and Practice	31.8%	31.7%	29.8%	40.4%	36.7%	32.3%
Simulation/Gaming	44.8	49.8	46.0	49.4	42.9	46.1
Tutorial	22.0	21.0	21.8	20.2	26.5	21.5
Word Processing	18.4	20.5	13.7	22.5	20.4	18.5
Database/Spreadsheet	10.5	7.8	7.3	18.0	12.2	10.1
Television/Video						
Television (off air)	46.2	38.5	29.8	37.1	36.7	39.1
Cable Television	37.2	31.7	21.8	14.6	6.1	27.9
Videotape	91.3	73.6	62.1	60.7	65.3	75.1
Television Production	12.3	9.8	8.1	10.1	6.1	10.1
Interactive Video	1.1	2.9	2.4	3.4	2.0	2.1
Distance Learning	0.4	1.0	--	1.1	--	0.5

NOTE: Percents are based on the number of schools using any Learning Technology in social studies.

*Poverty Status:

1: 0 - 20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

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TABLE 16

PERCENT OF PUBLIC SCHOOLS USING LEARNING TECHNOLOGIES IN LANGUAGE ARTS BY TYPE OF TECHNOLOGY AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Learning Technology	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Computer Assisted Instruction						
Drill and Practice	64.9%	71.1%	74.1%	73.6%	71.2%	69.8%
Simulation/Gaming	37.3	44.7	41.3	51.2	48.5	42.8
Tutorial	40.5	44.7	45.5	45.5	54.5	44.3
Word Processing	51.3	56.3	38.5	49.8	51.5	50.0
Database/Spreadsheet	3.9	3.4	3.5	5.8	4.5	4.0
Television/Video						
Television (off air)	31.2	28.8	26.6	28.1	10.6	27.6
Cable Television	26.5	23.1	16.1	10.7	6.1	19.8
Videotape	70.3	60.6	54.5	48.8	51.5	60.3
Television Production	17.2	13.0	11.9	11.6	7.6	13.6
Interactive Video	3.6	3.4	4.9	3.3	3.0	3.7
Distance Learning	2.2	1.4	--	0.8	--	1.2

NOTE: Percents are based on the number of schools using any Learning Technology in mathematics.

*Poverty Status:

1: 0 - 20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 17

PERCENT OF PUBLIC SCHOOLS USING LEARNING TECHNOLOGIES IN OCCUPATIONAL EDUCATION BY TYPE OF TECHNOLOGY AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Learning Technology	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Computer Assisted Instruction						
Drill and Practice	36.7%	34.5%	42.9%	32.1%	44.8%	37.4%
Simulation/Gaming	31.7	42.9	16.3	14.3	13.8	29.0
Tutorial	27.5	35.7	24.5	25.0	20.7	28.4
Word Processing	46.7	52.4	51.0	46.4	41.4	48.4
Database/Spreadsheet	28.3	35.7	28.6	14.3	13.8	27.7
Television/Video						
Television (off air)	18.3	17.9	12.2	25.0	10.3	17.1
Cable Television	17.5	17.9	6.1	21.4	--	14.5
Videotape	66.7	67.9	61.2	60.7	55.2	64.5
Television Production	7.5	9.5	8.2	10.7	6.9	8.4
Interactive Video	4.2	2.4	2.0	7.1	6.9	3.9
Distance Learning	1.7	1.2	2.0	3.6	--	1.6

NOTE: Percents are based on the number of schools using any Learning Technology in occupational education.

*Poverty Status:

1: 0 - 20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 18

PERCENT OF PUBLIC SCHOOLS USING LEARNING TECHNOLOGIES IN SPECIAL EDUCATION BY TYPE OF TECHNOLOGY AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Learning Technology	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Computer Assisted Instruction						
Drill and Practice	80.4%	78.5%	74.7%	58.6%	70.2%	76.0%
Simulation/Gaming	56.1	45.6	47.1	43.1	48.9	50.1
Tutorial	58.3	48.3	48.3	41.4	42.6	51.1
Word Processing	38.7	31.5	33.3	34.5	34.0	35.2
Database/Spreadsheet	3.5	6.7	6.9	5.2	2.1	4.9
Television/Video						
Television (off air)	20.0	20.1	19.5	29.3	10.6	20.1
Cable Television	18.7	15.4	9.2	13.8	8.5	15.1
Videotape	47.8	53.7	46.0	46.6	40.4	48.3
Television Production	3.5	4.0	1.1	5.2	8.5	3.9
Interactive Video	0.9	2.0	3.4	3.4	8.5	2.5
Distance Learning	0.9	1.3	--	1.8	--	1.0

NOTE: Percents are based on the number of schools using any Learning Technology in special education.

*Poverty Status:

1: 0 - 20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 19

PERCENT OF PUBLIC SCHOOLS USING LEARNING TECHNOLOGIES IN OTHER CURRICULUM AREAS BY TYPE OF TECHNOLOGY AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Learning Technology	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Computer Assisted Instruction						
Drill and Practice	31.3%	29.9%	30.0%	38.2%	33.3%	31.7%
Simulation/Gaming	29.4	26.8	30.0	29.1	33.3	30.0
Tutorial	28.1	22.8	21.4	34.5	15.2	25.4
Word Processing	40.6	41.7	25.7	25.5	21.2	35.3
Database/Spreadsheet	35.6	29.9	20.0	25.4	21.2	29.2
Television/Video						
Television (off air)	13.8	22.8	12.9	21.8	18.2	16.9
Cable Television	15.6	25.2	8.6	14.5	9.1	16.6
Videotape	51.3	53.5	47.1	49.1	48.5	50.8
Television Production	25.0	15.7	12.9	7.3	9.1	18.9
Interactive Video	5.6	2.4	1.4	1.8	6.1	3.6
Distance Learning	0.4	1.6	1.4	1.8	3.0	1.3

NOTE: Percents are based on the number of schools using any Learning Technology in other curriculum areas.

*Poverty Status:

1: 0 - 20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 20

PERCENT OF PUBLIC SCHOOLS USING DRILL AND PRACTICE, BY CURRICULUM AREA AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Curriculum Area	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Mathematics	92.4%	90.1%	91.6%	92.3%	91.9%	91.6%
Science	31.9	34.1	26.5	25.4	25.7	30.0
English	49.3	44.0	43.4	43.9	50.0	46.1
Social Studies	29.0	28.0	22.3	27.7	24.3	26.9
Language Arts	59.5	63.8	63.9	68.5	63.5	63.0
Occupational Education	14.5	12.5	12.7	6.9	17.6	12.8
Special Education	60.9	50.4	39.2	26.2	44.6	47.9
Other	16.5	16.4	12.7	16.2	14.9	15.6

NOTE: Percents based on number of schools using Drill and Practice.

*Poverty Status

1: 0-20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

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TABLE 21

PERCENT OF PUBLIC SCHOOLS USING SIMULATION/GAMING, BY CURRICULUM AREA AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Curriculum Area	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Mathematics	69.9%	72.4%	73.1%	76.2%	69.7%	71.9%
Science	49.1	51.9	38.5	33.3	33.3	44.6
English	29.4	26.7	30.8	29.5	28.8	28.9
Social Studies	46.1	48.6	43.9	41.9	31.8	44.6
Language Arts	38.7	44.3	45.4	59.1	48.5	44.9
Occupational Education	14.1	17.1	6.2	3.8	6.1	11.5
Special Education	48.0	32.4	31.5	23.8	34.9	36.7
Other	17.5	16.2	16.2	15.2	16.7	16.5

NOTE: Percents based on number of schools using Simulation/Gaming.

*Poverty Status

1: 0-20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 22

PERCENT OF PUBLIC SCHOOLS USING TUTORIALS, BY CURRICULUM AREA AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Curriculum Area	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Mathematics	84.8%	80.1%	80.7%	82.2%	90.7%	82.9%
Science	33.6	34.0	30.2	21.8	29.6	31.2
English	43.0	36.7	43.4	30.7	42.6	39.7
Social Studies	23.8	22.5	20.9	17.8	24.1	22.2
Language Arts	44.1	48.7	50.4	54.5	66.7	49.5
Occupational Education	12.9	15.7	9.3	6.9	11.1	12.0
Special Education	52.3	37.7	32.6	23.8	37.0	40.0
Other	17.6	15.2	11.6	18.8	9.3	15.5

NOTE: Percents based on number of schools using tutorials.

*Poverty Status

1: 0-20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 23

PERCENT OF PUBLIC SCHOOLS USING WORD PROCESSING BY CURRICULUM AREA AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Curriculum Area	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Mathematics	10.2%	12.8%	9.7%	16.3%	13.2%	11.8%
Science	12.9	14.4	9.7	12.8	11.3	12.7
English	61.0	51.6	62.1	51.2	54.7	56.9
Social Studies	19.3	22.3	16.5	23.3	18.9	20.2
Language Arts	54.2	62.2	53.4	69.8	64.2	58.9
Occupational Education	21.2	23.4	24.3	15.1	22.6	21.6
Special Education	33.7	25.0	28.2	23.3	30.2	29.0
Other	24.6	28.2	17.5	16.3	13.2	22.6

NOTE: Percents based on number of schools using word processing.

*Poverty Status

1: 0-20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 24

PERCENT OF PUBLIC SCHOOLS USING DATABASE/SPREADSHEET, BY CURRICULUM AREA AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Curriculum Area	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Mathematics	25.2%	23.3%	30.2%	33.3%	45.5%	27.6%
Science	23.7	20.0	9.3	33.3	22.7	21.7
English	13.0	12.2	11.6	13.9	18.2	13.0
Social Studies	22.1	17.3	20.9	44.4	27.3	23.6
Language Arts	8.4	7.8	11.6	19.4	13.6	10.3
Occupational Education	26.0	33.3	32.6	11.1	18.2	26.7
Special Education	6.1	11.1	14.0	8.3	4.6	8.7
Other	43.5	42.2	32.6	38.9	31.8	40.4

NOTE: Percents based on number of schools using database/spreadsheet.

*Poverty Status

1: 0-20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

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TABLE 25

PERCENT OF PUBLIC SCHOOLS USING TELEVISION (OFF AIR) BY CURRICULUM AREA AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Curriculum Area	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Mathematics	23.2%	18.8%	24.2%	21.4%	18.5%	21.6%
Science	69.7	58.9	68.2	60.7	55.6	64.4
English	58.1	40.2	42.4	39.3	44.4	47.4
Social Studies	82.6	70.5	56.1	58.9	66.7	70.9
Language Arts	56.1	53.6	57.6	60.7	25.9	54.3
Occupational Education	14.2	13.4	9.1	12.5	11.1	12.7
Special Education	29.7	26.8	25.8	30.4	18.5	27.6
Other	14.2	23.2	13.6	21.4	22.2	18.0

NOTE: Percents are based on the number of schools using television (off air).

*Poverty Status

1: 0-20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

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TABLE 26

PERCENT OF PUBLIC SCHOOLS USING CABLE TELEVISION, BY CURRICULUM AREA AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Curriculum Area	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Mathematics	22.3%	31.6%	35.9%	47.6%	16.7%	28.7%
Science	66.9	63.3	69.2	61.9	33.3	64.3
English	53.1	44.9	43.6	61.9	33.3	49.0
Social Studies	79.2	66.3	69.2	61.9	25.0	70.3
Language Arts	56.9	49.0	59.0	61.9	33.0	54.0
Occupational Education	16.2	15.3	7.7	28.6	--	15.0
Special Education	33.1	28.5	20.5	38.1	33.0	28.7
Other	19.2	32.7	15.4	38.1	25.0	24.7

NOTE: Percents are based on the number of schools using cable television.

*Poverty Status

1: 0-20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 27

PERCENT OF PUBLIC SCHOOLS USING VIDEOTAPE BY CURRICULUM AREA AND POVERTY STATUS OF SCHOOLS

NEW YORK STATE
SPRING 1986

Curriculum Area	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Mathematics	37.0%	35.4%	29.4%	27.1%	19.6%	32.8%
Science	81.5	70.3	57.9	57.7	55.4	69.9
English	70.1	55.9	53.2	48.2	39.3	58.7
Social Studies	90.0	77.4	61.1	63.5	57.1	76.3
Language Arts	69.8	64.6	61.9	69.4	60.7	66.4
Occupational Education	28.5	29.2	23.8	20.0	28.6	26.9
Special Education	39.2	41.0	31.8	31.8	33.9	37.2
Other	29.2	34.9	26.2	31.8	28.6	30.4

NOTE: Percents are based on the number of schools using videotape.

*Poverty Status

1: 0-20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

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TABLE 28

PERCENT OF PUBLIC SCHOOLS USING TELEVISION PRODUCTION, BY CURRICULUM AREA AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Curriculum Area	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Mathematics	7.8%	8.6%	12.9%	14.3%	18.2%	9.9%
Science	19.6	19.0	16.1	42.9	18.2	21.1
English	42.2	36.2	38.7	47.6	27.3	39.9
Social Studies	33.3	34.5	32.3	42.9	27.3	34.1
Language Arts	47.1	46.6	54.8	66.7	45.5	49.8
Occupational Education	8.8	13.8	12.9	14.3	18.2	11.7
Special Education	7.8	10.3	3.2	14.3	36.4	9.9
Other	39.2	34.5	29.0	19.1	27.3	37.7

NOTE: Percents are based on the number of schools using television production.

*Poverty Status

1: 0-20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 29

PERCENT OF PUBLIC SCHOOLS USING INTERACTIVE VIDEO, BY CURRICULUM AREA AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Curriculum Area	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Mathematics	20.0%	38.9%	53.3%	50.0%	11.1%	33.3%
Science	20.0	27.8	26.7	50.0	--	24.0
English	28.0	44.4	46.7	25.0	22.2	34.7
Social Studies	12.0	33.3	20.0	37.5	11.1	21.3
Language Arts	40.0	38.9	46.7	50.0	22.2	40.0
Occupational Education	20.0	11.1	6.7	25.0	22.2	16.0
Special Education	8.0	16.7	20.0	25.0	44.4	18.7
Other	36.0	16.7	6.7	12.5	22.2	21.3

NOTE: Percents are based on the number of schools using interactive video.

*Poverty Status

1: 0-20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

TABLE 30

PERCENT OF PUBLIC SCHOOLS USING DISTANCE LEARNING, BY CURRICULUM AREA AND POVERTY STATUS OF SCHOOLS*

NEW YORK STATE
SPRING 1986

Curriculum Area	Poverty Status of Schools*					Total
	Low 1	2	3	4	High 5	
Mathematics	25.0%	37.5%	--	100.0%	--	29.2%
Science	8.3	37.5	--	100.0	--	20.8
English	41.7	25.0	100.0%	100.0	--	41.7
Social Studies	8.3	25.0	--	100.0	--	16.7
Language Arts	50.0	37.5	--	100.0	--	41.7
Occupational Education	16.7	12.5	50.0	100.0	--	20.8
Special Education	16.7	25.0	--	100.0	--	20.8
Other	8.3	25.0	50.0	100.0	100.0%	25.0

NOTE: Percents are based on the number of schools using television production.

*Poverty Status

1: 0-20% of students on public welfare
2: 21-40% of students on public welfare
3: 41-60% of students on public welfare
4: 61-80% of students on public welfare
5: 81-100% of students on public welfare

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TABLE 31

USE OF LEARNING TECHNOLOGIES IN PUBLIC AND NONPUBLIC SCHOOLS

NEW YORK STATE
SPRING 1986

Learning Technology	Percent of Schools Using		
	Public	Nonpublic	Total
Computer Assisted Instruction			
Drill and Practice	93.4%	84.3%	91.3%
Simulation/Gaming	80.4	66.8	77.4
Tutorial	75.4	58.4	71.6
Word Processing	71.5	51.1	67.0
Database/Spreadsheet	33.2	20.4	30.4
Television/Video			
Television (off air)	42.9	29.6	39.9
Cable Television	30.9	19.3	28.4
Videotape	76.6	61.7	73.2
Television Production	23.0	15.0	21.2
Interactive Video	7.7	4.0	6.9
Distance Learning	2.5	0.7	2.1

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TABLE 32

LEARNING TECHNOLOGIES STAFF DEVELOPMENT AND TRAINING* IN PUBLIC AND NONPUBLIC SCHOOLS NEW YORK STATE SPRING 1986

Type of School	Percent of Schools
Public	77.5%
Nonpublic	58.1
Total	73.2

*Provided within last two years.

LEARNING TECHNOLOGIES STAFF DEVELOPMENT AND TRAINING IN PUBLIC AND NONPUBLIC SCHOOLS, BY AREA OF TRAINING NEW YORK STATE SPRING 1986

Area of Training	Percent of Schools*		
	Public	Nonpublic	Total
Curriculum Development	83.2%	79.3%	82.5%
Curriculum Integration	83.4	73.4	81.6
Administrative Application	56.7	52.7	55.9

*Percents based on the number of schools in which staff development and training was provided within the last two years.

LEARNING TECHNOLOGIES STAFF DEVELOPMENT AND TRAINING IN PUBLIC AND NONPUBLIC SCHOOLS, BY TRAINING PROVIDER NEW YORK STATE SPRING 1986

Training Provider	Percent of Schools*		
	Public	Nonpublic	Total
Home school/district	83.9%	52.7%	78.3%
BOCES	25.3	14.2	23.3
New York State Education Dept.	5.9	7.1	6.1
Postsecondary Institution	8.1	8.9	8.2
Commercial Firm	8.5	11.2	9.0
Other	8.8	29.0	12.4

*Percents based on the number of schools in which staff development and training was provided within the last two years.